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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/724,023

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Emanuele Confalonieri

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EXAMINER

HOANG, HUAN

ART UNIT

PAPER NUMBER

2818

DATE MAILED: 11/01/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/724,023

Applicant(s)

CONFALONIERI ET AL.

Examiner

Huan Hoang

Art Unit

2818

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-25 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____.  |

## **DETAILED ACTION**

### ***Claim Objections***

1. Claims 17-19 are objected to because of the following informalities:

The sentence "after the first state represents the first predetermined value" (claims 17, 18 and 19, line 6) should be deleted since it is already recited in line 4 of each of the claims. Appropriate correction is required.

### ***Claim Rejections - 35 USC § 112***

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 1-9 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 recites the limitation "the program-verify type" in line 4, claim 5 recite the limitation "the control circuit portions" in line 2, claim 6 recites the limitation "the reading step" in line 5 and claim 8 recites the limitation "the programmed state" in line 2. There is insufficient antecedent basis for the limitation in each of the claims.

### ***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

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A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

5. Claims 1-3 and 5-8 are rejected under 35 U.S.C. 102(a) as being anticipated by Torelli et al.

Torelli et al. discloses a programming method for multilevel non-volatile memory cells and a multilevel non-volatile memory electronic device having all the steps and elements as recited in claims 1-3 and 5-8 as follows:

- a first step wherein predetermined bias voltages are applied to the cell gate, drain and source terminals (column 2, lines 18-31);
- providing a following control step of the programming just occurred by means of a programming algorithm of the program-verify type, wherein the control step is skipped for some cells which have to reach a predetermined logic state (column 2, lines 1-3 and column 3, lines 64-67); and
- a logic network to disable the reading step (column 3, lines 49-50).

When programming memory cells, the cells have to reach a predetermined state. State "00" is one of the four states of the memory cells storing two bits.

6. Claims 10-12 and 15-25 are rejected under 35 U.S.C. 102(a) as being anticipated by admitted prior art.

The admitted prior art (Fig. 1) shows a method, an integrated circuit and an electronic system having all the steps and elements as recited in claims 10-12 and 15-25 as follows:

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- partially programming first and second multilevel non-volatile memory cells having respective first and second states (00 and 10); and
- determining the first state (00 by using Ver3) but not determining the second state (the second state "10" is skipped in Ver3).

***Claim Rejections - 35 USC § 103***

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 13 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over the admitted prior art.

The admitted prior art discloses all the steps as recited in claims 13 and 14 except for the first state being a logic 01 or 10. However, the four states in a memory cell storing two bits are equivalent in the art. It would have been obvious to one having ordinary skill in the art at the time the invention was made to use a logic 01 or 10 as a first state since the four states are equivalent in the art.

***Allowable Subject Matter***

9. Claims 4 and 9 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter:

The prior art does not teach or suggest the following feature "the control step for some cells is skipped by connecting to a ground potential reference the bit line whereto these cells are connected".

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Huan Hoang whose telephone number is (571) 272-1779. The examiner can normally be reached on Mon-Fri 8:30AM-5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David C Nelms can be reached on (571) 272-1787. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Huan Hoang  
Primary Examiner  
Art Unit 2818

HH  
10/24/04.